

In the claims:

1. (currently amended) An optical service agent operating at an optical switched router for managing connection establishment and related services for a user in an optical communication network, the optical service agent comprising:

a user-to-network interface (UNI) for interfacing with the optical communication network;

authentication logic for controlling access by the user to the UNI;

a peer-to-peer interface for interfacing with peer users, the peer-to-peer interface including logic for discovering peer optical service agent enabled end users associated with optical devices capable of providing optical services and associated bearer channels of the optical service agent end users; and

optical service logic, coupled to the UNI and the peer-to-peer interface, for managing the optical communication network in accordance with said connection establishment and related services requested by the user.

2. (original) The optical service agent of claim 1, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

3. (original) The optical service agent of claim 1, wherein the optical service logic comprises: negotiation logic for negotiating various connection and connection-related services on behalf of the user.

4. (original) The optical service agent of claim 1, wherein the optical service logic comprises: modeling logic for modeling at least one connection for the user.

5. (original) The optical service agent of claim 1, wherein the optical service logic comprises: reservation logic for reserving connection and connection-related services for the user.

6. (original) The optical service agent of claim 1, wherein the critical service logic comprises:

connection establishment logic for establishing a connection for the user.

7. (original) The optical service agent of claim 3, wherein the negotiation logic comprises at least one of:

- logic for obtaining quotes for communication services from one or more providers;
- logic for placing a connection out to bid by one or more providers and managing the bidding process for the connection;
- logic for negotiating costs and other parameters for a connection with one or more providers;
- logic for buying connection and connection-related services from one or more providers;
- logic for selling connection and connection-related services; and
- logic for re-selling connection and connection-related services.

8. (original) The optical service agent of claim 1, wherein the optical service logic comprises: aggregation logic for aggregating multiple optical communication paths over a connection.

9. (original) The optical service agent of claim 4, wherein the modeling logic comprises at least one of:

- logic for interacting with the optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;
- logic for interacting with multiple providers to obtain multiple quotes for communication services;
- logic for negotiating with one or more providers to obtain favorable terms for the user;
- logic for interacting with the peer users via the peer-to-peer interface for obtaining information relating to a portion of a connection beyond the optical communication network
- logic for compiling information relating to a portion of a connection on a user side of the optical communication network; .and
- logic for presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

10. (original) The optical service agent of claim 5, wherein the reservation logic comprises at least one of:

logic for interacting with the peer users via the peer-to-peer interface in order to reserve communication services provided by the peer users; and

logic for interacting with the optical communication network via the UNI in order to reserve communication services provided by the optical communication network.

11. (original) The optical service agent of claim 1, wherein the optical service logic comprises bandwidth determination logic for determining bandwidth requirements for a connection.

12. (original) The optical service agent of claim 6, wherein the connection establishment logic comprises at least one of:

logic for interacting with the optical communication network in order to set up a communication path having specific attributes; and

logic for interacting with the peer users via the peer-to-peer interface in order to set up a communication path end-to-end across the optical communication network.

13. (currently amended) A device comprising:

a user application requesting a communication service from an optical communication network; and

an optical service agent for managing connection establishment and related services for the user application to obtain the communication service, wherein the optical service agent comprises:

a user-to-network interface (UNI) for interfacing with the optical communication network;

authentication logic for controlling access by the user to the UNI;

a peer-to-peer interface for interfacing with peer users , the peer-to-peer interface including logic for discovering peer optical service agent enabled end users associated with

optical devices capable of providing optical services and associated bearer channels of the optical service agent end users;; and

optical service logic for interacting with the optical communication network via the UNI and with the peer users via the peer-to-peer interface for managing said connection establishment and related services for the user application .

14. (cancelled)

15. (previously presented) The device of claim 13, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

16. (previously presented) The device of claim 13, wherein the optical service logic comprises:
negotiation logic for negotiating various connection and connection-related services on behalf of the user application.

17. (previously presented) The device of claim 13, wherein the optical service logic comprises:
modeling logic for modeling at least one connection for the user application.

18. (previously presented) The device of claim 13, wherein the optical service logic comprises:
reservation logic for reserving connection and connection-related services for the user application.

19. (previously presented) The device of claim 13, wherein the optical service logic comprises:
connection establishment logic for establishing a connection for the user application.

20. (original) The device of claim 16, wherein the negotiation logic comprises at least one of:
logic for obtaining quotes for communication services from one or more providers;
logic for placing a connection out to bid by one or more providers and managing the bidding process for the connection;

logic for negotiating costs and other parameters for a connection with one or more providers;

logic for buying connection and connection-related services from one or more providers;

logic for selling connection and connection-related services; and

logic for re-selling connection and connection-related services.

21. (previously presented) The device of claim 13, wherein the optical service logic comprises:

aggregation logic for aggregating multiple optical communication paths over a connection.

22. (original) The device of claim 17, wherein the modeling logic comprises at least one of:

logic for interacting with the optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;

logic for interacting with multiple providers to obtain multiple quotes for communication services;

logic for negotiating with one or more providers to obtain favorable terms for the user;

logic for interacting with the peer users via the peer-to-peer interface for obtaining information relating to a portion of a connection beyond the optical communication network;

logic for compiling information relating to a portion of a connection on a user side of the optical communication network; and

logic for presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

23. (original) The device of claim 18, wherein the reservation logic comprises at least one of:

logic for interacting with the peer users via the peer-to-peer interface in order to reserve communication services provided by the peer users; and

logic for interacting with the optical communication network via the UNI in order to reserve communication services provided by the optical communication network.

24. (original) The device of claim 14, wherein the optical service logic comprises bandwidth determination logic for determining bandwidth requirements for a connection.

25. (original) The device of claim 19, wherein the connection establishment logic comprises at least one of:

logic for interacting with the optical communication network in order to set up a communication path having specific attributes; and

logic for interacting with the peer users via the peer-to-peer interface in order to set up a communication path end-to-end across the optical communication network.

26. (currently amended) A system comprising:

an optical communication network;

a first network user coupled to the optical communication network, wherein the first network user comprises an optical service agent executing on an optical switched router and comprising a user-to-network interface (UNI) and a peer-to-peer interface, the peer-to-peer interface including logic for discovering peer optical service agent enabled end users associated with optical devices capable of providing optical services and associated bearer channels of the optical service agent end users, the optical service agent including authentication logic for controlling access by the user to the UNI;

the optical services agent for obtaining optical communication services from the optical communication network via the user-to-network interface (UNI) and for managing connection establishment and related services for the first network user.

27. (original) The system of claim 26, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

28. (original) The system of claim 26, wherein the optical service agent is operably coupled to negotiate various connection and connection-related services on behalf of the user application.

29. (original) The system of claim 26, wherein the optical service agent is operably coupled to model at least one connection for the user application.

30. (original) The system of claim 26, wherein the optical service agent is operably coupled to reserve connection and connection-related services for the user application.

31. (original) The system of claim 26, wherein the optical service agent is operably coupled to establish a connection for the user application.

32. (original) The system of claim 26, wherein the optical service agent is operably coupled to aggregate multiple optical communication paths over a connection.

33. (original) The system of claim 26, wherein the optical service agent is operably coupled to determine bandwidth requirements for a connection.

34. (currently amended) A method for managing communication establishment and related services for a user in an optical communication system by an optical services agent operating at an optically switched router, the optical services agent comprising a user-to-network interface and a peer-to-peer interface, the peer-to-peer interface including logic for discovering peer optical service agent enabled end users associated with optical devices capable of providing optical services and associated bearer channels of the optical service agent end users, the method comprising at least one of:

negotiating various connection and connection-related services on behalf of the user including authenticating the user;

modeling at least one connection for the user;

reserving connection and connection-related services for the user with the discovered peer optical service agent enabled end users at one or more desired bearer channels;

establishing a connection for the user; and

aggregating multiple optical communication paths over a connection.

35. (original) The method of claim 34, wherein negotiating various connection and connection-related services on behalf of the user comprises at least one of:

- obtaining a quote for communication services from a number of providers;
- placing a connection out to bid by a number¹ of providers and managing the bidding process for the connection;
- negotiating costs and other parameters for a connection with a number of providers;
- buying connection and connection-related services from a number of providers;
- selling connection and connection-related services; and
- re-selling connection and connection-related services.

36. (original) The method of claim 34, wherein modeling at least one connection for the user comprises at least one of:

- interacting with an optical communication network to obtain information relating to a portion of a connection traversing the optical communication network;
- interacting with peer users to obtain information relating to a portion of the connection beyond the optical communication network;
- compiling information relating to a portion of the connection on a user side of the optical communication network; and
- presenting a modeled connection to the user in a form that is convenient for the user to evaluate the connection.

37. (original) The method of claim 34, wherein reserving connection and connection-related services for the user comprises at least one of:

- interacting with an optical communication network to reserve communication services provided by the optical communication network; and
- interacting with peer users to reserve communication services provided by the peer users.

38. (original) The method of claim 34, wherein establishing a connection for the user comprises at least one of:

interacting with an optical communication network in order to set up a communication path having specific attributes; and

interacting with peer users in order to set up a communication path end-to-end across the optical communication network.

39. (original) The method of claim 34, wherein aggregating multiple optical communication paths over a connection comprises:

receiving a first request for a first optical communication path;

establishing a connection for the first optical communication path;

receiving a second request for a second optical communication path;

and

mapping the second optical communication path to the connection using a predetermined mapping protocol.